COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Valley Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Shenandoah County Sanitary Landfill
Edinburg, Shenandoah County, Virginia
Permit No. VRO81401

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Shenandoah County Sanitary Landfill has applied for a Title V Operating Permit for its Edinburg facility. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact: _____ Date: *12/18/2014*

Jeremy W. Funkhouser
(540)-574-7820

Air Permit Manager: _____ Date: *12/18/2014*

Janardan R. Pandey, P.E.

FACILITY INFORMATION

Permittee
Shenandoah County
600 North Main Street
Suite 102
Woodstock, Virginia 22664

Facility
Shenandoah County Sanitary Landfill
349 Landfill Road
Edinburg, Virginia 22824

County-Plant Identification Number: 51- 171-0086

SOURCE DESCRIPTION

NAICS Code: 562212 – Refuse Systems – Solid Waste Landfills

Shenandoah County Sanitary Landfill (the facility) is a municipal solid waste (MSW) management facility located approximately three miles north of Edinburg, Virginia. The total area within the facility boundary is approximately 214 acres. The parcels containing the four waste management units, EU-1, EU-2, EU-3, and EU-4, are contiguous, county-owned property and are considered a single disposal facility. The first landfill cells, constructed and approved under the Virginia Department of Health Permit No. 78, were opened in 1972 and closed in 1987 (designated EU-1). Of the 54 acres of available disposal area remaining under Solid Waste Permit No. 469, approximately 17 acres are occupied by cell EU-2 (closed in 1995) and cell EU-3 (closed in 2003). The remaining 38 acres are occupied by the Subtitle D expansion area Phases I-IX (designated EU-4). This area opened in 2003 and is currently accepting waste.

A minor New Source Review (NSR) permit was issued August 6, 2004 and amended February 10, 2009 and October 10, 2014. The October 10, 2014 amendment decreased the permitted capacities of the closed cells EU-1 and EU-2, and increased the permitted capacity of the closed cell EU-3. The changes to the waste-in-place data for the three closed cells (EU-1 through EU-3) are based on estimated waste tonnage filled from 1972 through 1990, and actual County waste filling records based on scale house records from 1991 through 2013. Shenandoah County Sanitary Landfill assumes an in-place density of 1,300 pounds per cubic yard for EU-4 due to the use of an approved alternative cover called Posi-Shell®; the in-place density of EU-1, EU-2 and EU-3 is 1,200 pounds per cubic yard since Posi-Shell ® was not used in the earlier disposal areas

Shenandoah County Sanitary Landfill is subject to the provisions of 40 CFR 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills as it was modified after May

30, 1991. As stated in §60.752 (b), landfills having a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million m^3 are subject to part 70 (Title V) permitting requirements. (Attachment A)

Shenandoah County Sanitary Landfill is also subject to the provisions of 40 CFR 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills (MACT). Per §63.1935 (a)(3), a landfill is subject to this subpart if it is an area source that has a design capacity equal to or greater than 2.5 million Mg and 2.5 million m^3 and has estimated uncontrolled emission equal to or greater than 50 mg/yr NMOC as calculated according to §60.754(a) of 40 CFR 60, Subpart WWW (using CAA default values). The compliance date for this subpart was January 16, 2004. However, the facility conducted testing to determine site-specific values prior to the MACT compliance date, as discussed below. Therefore, the requirements for compliance with the MACT defer to the NSPS, Subpart WWW per §63.1945 (f).

Tier 2 testing, as defined in §60.754(a)(3), was initially conducted in August 2003 to determine the site-specific non-methane organic compounds (NMOC) concentration for use in the Landfill Gas Emissions Model (LandGEM). Tier 2 testing is allowed under §60.757 (c)(1) in lieu of a facility submitting a collection and control system design plan required under §60.752(b)(2). This testing can be conducted if the calculated NMOC emission rate using Clean Air Act (CAA) default values for methane generation and NMOC concentration is equal to or greater than 50 megagrams per year. The testing must be conducted within one year of the exceedance determination. The site-specific NMOC concentration determined in Tier 2 testing is then used in determining annual NMOC emissions. Re-testing is required every five years to update the site-specific NMOC concentration.

If the use of the site-specific NMOC concentration yields emissions greater than 50 Mg/year of NMOC, the facility has the option of installing a collection and control system or proceeding with Tier 3 testing, defined in §60.754(a)(4), for the determination of a site-specific methane generation rate constant used for calculating annual NMOC emissions. To date, Shenandoah County Sanitary Landfill has not exceeded 50 Mg NMOC per year using the site-specific NMOC concentration determined in Tier 2 testing and therefore has not conducted Tier 3 testing.

The current NSR and Title V permits include conditions requiring the installation of a landfill gas (LFG) collection and control system as defined in 40 CFR 60, Subpart WWW. This source is located in an attainment area for all pollutants. The facility is currently permitted under a minor NSR permit dated August 6, 2004, amended February 10, 2009 and October 10, 2014.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are

submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

A Full Compliance Evaluation (FCE) was conducted on January 5, 2012. The site was determined to be in compliance with all applicable conditions.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Table I: Significant Emission Units

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device Description (PCD)	PCD ID	Pollutant Controlled	Applicable Permit Date
Landfill							
EU-1	-	Landfill Cell opened 1972, closed 1987 VDH Permit No. 78	711,787 yd^3 (427,072 tons)	-	-	-	08/06/04, as amended 02/10/09 and 10/10/14
EU-2	-	Landfill Cell opened 1988, closed 1995 Solid Waste Permit No. 469	487,363 yd^3 (292,418 tons)	-	-	-	08/06/04, as amended 02/10/09 and 10/10/14
EU-3	-	Landfill Cell opened 1996, closed 2003 Solid Waste Permit No. 469	514,290 yd^3 (308,574 tons)	-	-	-	08/06/04, as amended 02/10/09 and 10/10/14
EU-4	-	Subtitle D Expansion Area, Phases I-IX Opened 1985 Solid Waste Permit No. 469	5,334,000 yd^3 (3,467,100 tons)	-	-	-	08/06/04, as amended 2/10/09 and 10/10/14
EU-6	S-1	The Flare Guy, LLC Landfill Flare Model No. UBF825S8	1,000 cfm	---	---	---	---

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device Description (PCD)	PCD ID	Pollutant Controlled	Applicable Permit Date
Landfill Surface and Roads							
EU-5	-	MSW Landfill Surface and Access Roads	-	-	-	-	08/06/04, as amended 2/10/09 and 10/10/14

EMISSIONS INVENTORY

A copy of the 2013 annual emission update is attached (Attachment B). Emissions are summarized in the following tables.

Table II: 2013 Actual Emissions

Pollutant	Emissions (tons/yr)
PM-10	2.7
PM-2.5	0.3
CO	1.2
VOC	0.4
TNMOC	0.9

EMISSION UNIT APPLICABLE REQUIREMENTS

Shenandoah County Sanitary Landfill is subject to 40 CFR 60, Subparts A – General Provisions and WWW – New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills. The facility is also subject to 40 CFR 63, Subparts A – General Provisions and AAAA – National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills. The facility is defined as an area source under the MACT. However, §63.1955 (a)(1) states that compliance with the requirements of 40 CFR 60, Subpart WWW meets the requirements of the MACT.

Landfill Requirements – Emission Units EU-1, EU-2, EU-3, EU-4, and EU-6

Limitations

The following limitations are applicable requirements from the minor NSR permit issued August 6, 2004, amended February 10, 2009 and October 10, 2014, which includes requirements based on Subpart WWW requirements. The condition numbers are from the minor NSR permit. A copy of the permit is attached (Attachment C).

Condition 2 – Design capacity of the landfill shall not exceed 7.047 million cubic yards.

Condition 4 – Landfill gas (LFG) collection and control requirements in the event the NMOC emission rate equals or exceeds 50 Mg per year.

Note that Condition 4 of the minor NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014) does not currently require the facility to install a LFG collection and control system. This condition requires the installation of a collection and control system in

compliance with §60.752 (b), within 30 months after the first annual emission rate report where the NMOC emission rate equals or exceeds 50 Mg per year, unless Tier 2 or Tier 3 sampling demonstrates that the rate is less than the threshold rate.

In addition to the minor NSR permit issued August 6, 2004, amended February 10, 2009, the following Virginia Administrative Codes that have specific emission requirements has been determined to be applicable to the landfill flare (EU-6):

> 9 VAC 5-50-80, Standard for Visible Emissions – Visible emission limit for new and modified units shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity applies to the flare.

The following limitations are established in accordance with 9 VAC 5-50-80; condition numbers refer to the Title V permit:

Condition 3 - The condition establishes the approved fuel for the flare is landfill gas (LFG).

Condition 4 - The condition establishes the visible emission limitation for the flare.

Installation and operation of the landfill flare is currently not required by 40 CFR 60, Subpart WWW, nor is the landfill flare currently used to meet the requirements of 40 CFR 60, Subpart WWW. The requirements of 9 VAC 5-50-80 have been included as a limitation in the permit.

Monitoring and Recordkeeping

The monitoring and recordkeeping requirements are derived from 40 CFR 60, Subpart WWW and meet the Part 70 monitoring requirements. The monitoring and recordkeeping requirements from the NSPS are stated in Conditions 7 and 14 of the minor NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014).

As required in Condition 14 of the minor NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014), the permittee shall maintain records including, but not limited to, the design capacity of the landfill, the current amount of solid waste-in-place, and the year-by-year or average waste acceptance rate.

As required by Condition 7 of the minor NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014), the actual emissions from the operation of the landfill shall be calculated using one of the following equations (Equation 1 or 2):

$$M_{NMOC} = \sum_{i=1}^{n} 2k\, L_O M_i (e^{-kt_i})(C_{NMOC})(3.6 \times 10^{-9})$$

……..Equation 1

M_{NMOC}	=	Total NMOC emission rate from the landfill, megagrams per year
k	=	methane generation rate constant, year $^{-1}$
L_O	=	methane generation potential, cubic meters per megagram solid waste
M_i	=	mass of solid waste in the i^{th} section, megagrams
t_i	=	age of the i^{th} section, years
C_{NMOC}	=	concentration of NMOC, parts per million by volume as hexane
$3.6x10^{-9}$	=	conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

$$M_{NMOC} = 2L_O R(e^{-kc} - e^{-kt})(C_{NMOC})(3.6 \times 10^{-9})$$

……..Equation 2

M_{NMOC}	=	mass emission rate of NMOC from the landfill, megagrams per year megagrams per year
L_O	=	methane generation potential, cubic meters per megagram solid waste
R	=	average annual acceptance rate, megagrams per year
k	=	methane generation rate constant, year $^{-1}$
t	=	age of the landfill, years
C_{NMOC}	=	concentration of NMOC, parts per million by volume as hexane
c	=	time since closure, years (for an active landfill c = 0 and $e^{-kc} = 1$)
$3.6x10^{-9}$	=	conversion factor

The mass of nondegradable solid waste may be subtracted from the average annual acceptance rate when calculating a value for R, if documentation of the nature and amount of such wastes is maintained.

The landfill flare (Ref. EU-6) is subject to the visible emissions requirements of 9 VAC 5-50-80.

Condition 6 of the Title V permit requires the landfill flare (Rf. EU-6) to be operated in accordance with the manufacturer's written requirements or recommendations. A requirement for the facility to maintain records of the manufacturer's written requirements or recommendations for operation of the landfill flare is provided in Condition 7 of the Title V permit; this recordkeeping condition is streamlined with Condition 14 of the minor NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014). The requirement to operate the flare according to the manufacturer's requirements provides adequate means of demonstrating compliance with the visible emissions limitation and fuel requirements in Conditions 3 and 4 of the Title V permit.

Testing

Conditions 10 and 11 of the NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014) require testing of site-specific NMOC concentration using the procedures described under Subpart WWW. Condition 12 of the NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014) allows that the permittee may use other appropriate methods to determine NMOC concentration or a site-specific methane rate generation constant if the method has been approved by the EPA.

Condition 11 of the Title V permit requires the permittee to conduct visible emission evaluations from the landfill flare (Ref. EU-6) to demonstrate compliance with the visible emission limits contained in the permit, upon request by the DEQ.

Reporting

The reporting requirements from Condition 15 through 20 of the NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014) have been incorporated into the Title V operating permit. This reporting includes an annual NMOC Emission Report. Since the NMOC emission rate is less than 50 Mg/yr using site-specific values, reporting requirements per 40 CFR §60.757(c) related to a collection and control system are not currently applicable and have not been incorporated into the permit. However Conditions 16 and 17 of the NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014), require the facility to submit a collection and control design plan and to install a collection and control system, in compliance with 40 CFR §60.752 (b)(2), in the event that the NMOC rate is equal to or greater than 50 Mg/yr.

Streamlined Requirements

The following applicable requirements have not been included for the reasons provided:

40 CFR §60.757 (a) – Initial Design Capacity Submittal Requirement

On September 26, 1996, the facility submitted the initial design capacity report. The modified design capacity report was submitted on August 5, 2002. A later revision to the design capacity report was submitted on April 30, 2004.

40 CFR §60.757 (b) – Initial Non Methane Organic Compounds (NMOC) Emission Rate Report Requirement

On August 5, 2002, the facility submitted a NMOC emission rate report. As per this report, the 1997 NMOC emission estimate for the landfill was 294 Mg/yr. Since the NMOC emission rate exceeded 50 Mg/yr, the facility was required to determine a site-specific NMOC concentration and recalculate the NMOC emission rate under Tier 2 procedures, or submit a collection and control system design plan prepared by a professional engineer within one year of the report and comply with §60.757 (b)(2). The facility conducted Tier 2 sampling on May 19 and 20, 2003. Results of the sampling, including a revised NMOC emission rate, were submitted to the DEQ.

40 CFR 60.757 (c)(1) – Non Methane Organic Compounds (NMOC) Emission Rate Report Requirement under Tier 2 sampling

The facility conducted initial Tier 2 sampling on May 19 and 20, 2003 and recalculated the NMOC emission rate based on the sampling. The site-specific NMOC concentration and Tier 2 NMOC emission rate report were submitted on August 25, 2003. The site specific NMOC concentration was determined to be 158.9 ppmv as hexane and the estimated 2003 NMOC emission rate was 4.9 Mg/yr. Since the NMOC emission rate was under 50 Mg/yr, the facility was not required to submit a collection and control system design plan at that time. The facility submitted a revised NMOC emission rate report on April 13, 2004. As per the revised report, the 2003 NMOC emission rate for the landfill was 5.59 Mg/yr.

The facility conducted 5-year Tier 2 testing on January 2, 2013 in accordance with 60.754 (a)(3)(iii). The site-specific NMOC concentration during the January 2, 2013 testing was determined to be 201.7 ppmv as hexane and the estimated NMOC emission rate for the year 2013 is 15.7 Mg/yr.

A copy of the Tier 2 testing report is attached (Attachment D).

Condition 9 of the minor NSR permit dated August 6, 2004, amended February 10, 2009 and October 10, 2014

This condition has not been included as all applicable requirements from 40 CFR 60, Subpart WWW have been included in the Title V permit.

Facility-Wide Requirements: Landfill Road Requirements – Emission Unit EU-5

Limitations

The requirements applicable to the landfill surface and access roads are included under the Facility Wide Conditions in the Title V permit. The facility wide conditions also include the fugitive dust emissions control requirements applicable to general site maintenance, i.e. grading, cell construction, daily cover application, etc. The following conditions are taken from the minor NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014):

Condition 5 – Fugitive dust emissions control requirements.

Condition 6 – Dust Control Plan requirements.

Condition 8 – Visible emission limit of 20 percent opacity (Method 9) except for one six-minute period in any one hour which shall not exceed 30 percent opacity.

Monitoring and Recordkeeping

The following monitoring and recordkeeping requirements are taken from the minor NSR permit (dated August 6, 2004, amended February 10, 2009 and October 10, 2014):

Condition 13 – Daily visual survey of the trafficable roads and other landfill activities for excess fugitive emissions including corrective action.

Condition 14 – The condition establishes the recordkeeping requirements.

In lieu of conducting periodic evaluations using EPA Method 9 to demonstrate compliance with the facility-wide visible emission limit, the permittee shall perform a daily visual survey of the trafficable roads at the site and landfill activities for sources of excessive emissions. (Visual inspection using EPA Method 9 is not required as that there is no stack in the landfill on which to perform the test.) The presence of excessive emissions determined from the visual survey shall require further investigation as to the cause of the emissions and timely corrective action shall be required. All observations and corrective actions taken shall be logged and recorded. These records shall be available on-site for inspection by the DEQ and shall be current for the most recent five years in accordance with Condition 14 of the minor NSR permit.

There is reasonable assurance that violations of the visible emission standard should not occur if the permittee complies with the permit condition to mitigate fugitive dust, implements the operating procedures included in the Dust Control Plan, performs a daily visible emission survey, and conducts timely corrective actions as needed.

As required by Condition 14 of the minor NSR permit, the permittee shall maintain records regarding facility-wide operations including, but not limited to, placement of non-degradable waste, installation and location of vents, the Dust Control Plan, and daily logs regarding visual survey of trafficable roads (discussed above).

Testing

The permit does not require source emission tests. A condition requiring testing is included in the permit if further testing for compliance purposes is required. The DEQ and EPA have authority to require testing not included in the permit if necessary to determine compliance with an emission limit or standard.

Streamlined Requirements

There are no streamlined requirements for the landfill surface and roads.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

Permit Expiration (Conditions 28 – 33)

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia*, and the "Department of Environmental Quality Agency Policy Statement No. 2-2003".

This general condition cite(s) the Article(s) that follow(s):
Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources
This general condition cites the sections that follow:
9 VAC 5-80-80. Application
9 VAC 5-80-150. Action on Permit Applications

Failure/Malfunction Reporting (Condition 39)

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

Permit Modification (Condition 43)

This general condition cites the sections that follow:
9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources
9 VAC 5-80-190. Changes to Permits.
9 VAC 5-80-260. Enforcement.
9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources
9 VAC 5-80-1605. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

Malfunction as an Affirmative Defense (Conditions 57 – 60)

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Conditions 57 through 60 and General Condition 39. For further explanation see the comments on Failure/Malfunction Reporting (Condition 39).

This general condition cites the sections that follow:
9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction
9 VAC 5-80-110. Permit Content

FUTURE APPLICABLE REQUIREMENTS

On June 30, 2014, the U.S. Environmental Protection Agency proposed updates to its (NSPS) for municipal solid waste landfills. In summary the updates would apply to MSW landfills that begin construction, modification or reconstruction on or after this proposal is published in the Federal Register. As provided in the EPA fact sheet, the proposed rules would not apply to landfills subject to the current NSPS, which was issued in 1996. Pertinent parts of the proposed updates will be applicable to the facility upon final action and incorporation into the NSPS.

INAPPLICABLE REQUIREMENTS

The provisions of 40 CFR Part 98 – Mandatory Greenhouse Gas Reporting require owners and operators of municipal solid waste landfills that generate methane (CH_4) in amounts equivalent to 25,000 metric tons CO_2e or more per year, to report greenhouse gas (GHG) emissions, annually. The definition of "applicable requirement" in 40 CFR 70.2 and 71.2 does not include requirements such as those included in Part 98, promulgated under Clean Air Act (CAA) section 114(a)(1) and 208. Therefore, the requirements of 40 CFR Part 98 are not applicable under the Title V permitting program.

As a result of several EPA actions regarding GHG under the CAA, emissions of GHG must be addressed for a Title V permit renewed after January 1, 2011. The current state minor NSR (or PSD) permit for the facility contains no GHG-specific applicable requirements and there have been no modifications at the facility requiring a PSD permit. Therefore, there are no applicable requirements for the facility specific to GHG.

The applicant did not identify any inapplicable requirements in its application.

As per 40 CFR §64.2 (b)(1)(i), this MSW landfill is exempt from CAM applicability as this landfill is subject to emission limitations proposed after November 15, 1990 pursuant to Section 111 or 112 of the Clean Air Act. This MSW landfill is subject to the requirements of 40 CFR 60, Subpart WWW, promulgated under the authority of Section 111 and effective March 1996. All applicable monitoring requirements from Subpart WWW have been included in the permit.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Table III: Insignificant Emission Units

Emission Unit No.	Emission Unit Description	Citation[1] (9 VAC-)	Pollutant Emitted (5-80-720 B)	Rated Capacity (5-80-720 C.)
IS-1	MSW Leachate Storage Lagoon	5-80-720 B	VOC	--
IS-2	Co-compost Facility	5-80-720 B	VOC	--
IS-3	Diesel-fired Posi Shell Mixer/Applicator (portable)	5-80-720 B	PM-10, PM-2.5, SOx, NOx, CO, VOC	--

Emission Unit No.	Emission Unit Description	Citation[1] (9 VAC-)	Pollutant Emitted (5-80-720 B)	Rated Capacity (5-80-720 C.)
IS-4	Waste Oil Burner	5-80-720 B	PM-10, PM-2.5, SOx, NOx, CO, VOC	--
IS-5	Diesel Tank	5-80-720 B	VOC	4,000 gallons
IS-6	Gasoline Tank	5-80-720 B	VOC	1,000 gallons
IS-7	Heating Oil Tank #1	5-80-720 B	VOC	1,000 gallons
IS-8	Heating Oil Tank #2	5-80-720 B	VOC	275 gallons
IS-9	Waste Oil Tank	5-80-720 B	VOC	3,000 gallons
IS-10	Motor Oil Tank	5-80-720 B	VOC	275 gallons
IS-11	JD Hygard Oil Tank	5-80-720 B	VOC	175 gallons
IS-12	Hydraulic Oil Tank	5-80-720 B	VOC	275 gallons
IS-13	Kerosene Tank	5-80-720 B	VOC	275 gallons
IS-14	Used Antifreeze Tank	5-80-720 B	VOC	275 gallons
IS-15	Off-Road Diesel Tank	5-80-720 B	VOC	1,000 gallons

[1]The citation criteria for insignificant activities are as follows:
9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
9 VAC 5-80-720 B - Insignificant due to emission levels
9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit was placed on public notice in the Northern Virginia Daily newspaper on October 30, 2014. All persons on the Title V mailing list were sent a copy of the public notice by either e-mail or mail on October 30, 2014. The affected states of West Virginia and Maryland were notified of the public notice by e-mail on October 30, 2014. Public comments were accepted from October 30, 2014 through December 1, 2014. No comments were received.

EPA was notified of the public notice and sent a copy of the draft permit on October 27, 2014 for concurrent review. The EPA concurrent review period ended on December 16, 2014. No comments were received.

ATTACHMENTS

Attachment A – Design Capacity Report
Attachment B – 2013 Emission Inventory and Summary
Attachment C – Minor New Source Review Permit issued August 6, 2004, as amended February 10, 2009 and October 10, 2014
Attachment D – Tier 2 Testing Report, dated February 11, 2013

Attachment A

Design Capacity Report

AMENDED DESIGN CAPACITY REPORT
SHENANDOAH COUNTY SANITARY LANDFILL
EDINBURG, VIRGINIA
June 18, 2008

INTRODUCTION

The Shenandoah County Sanitary Landfill is a municipal solid waste (MSW) management facility located approximately three miles north of Edinburg, Virginia. It is owned and operated by Shenandoah County. The total area within the facility boundary is approximately 214 acres. The first landfill cells constructed and approved under the Virginia Department of Health Permit No. 78 are at the extreme southern property boundary and were opened in 1972 and closed in 1987 (designated as EU-1). Of the 68 acres of available disposal area remaining under Solid Waste Permit No. 469, approximately 30 acres are occupied by the old closed cells (closed in 1995 and designated as EU-2), and the recently closed area (closed in 2003 and designated as EU-3). This 30-acre area is often called Cells 8 and 9. The remaining 38 acres are occupied by the Subtitle D expansion area Phases I-IX (EU-4) which was opened in 2003 and is currently accepting waste. The Facility commenced operations in 1972 and is subject to the New Source Performance Standards (NSPS) as documented in 40 CFR 60 Subpart WWW.

The Facility's Solid Waste Permit (No. 469) is being amended to increase the design capacity of the active MSW cell (EU-4).

This amended design capacity report is intended to update the Facility's previous Report, revised April 30, 2004. There is no change to the original design capacity report for emission sources EU-1, EU-2, and EU-3. In accordance with Section III.A.1 of the Facility's Title V Operating Permit (No. VRO81401) and 40 CFR 60.757 of the NSPS, this Report for the Shenandoah County Regional Landfill incorporates the landfill disposal areas included in both solid waste permit No. 78 and No. 469.

DESIGN CAPACITY

Area of Landfill	Disposal Cell Footprint Acreage	Closure Date	Date Last Received Waste	Previous Design Capacity (CY)[1]	Max. Design Capacity (CY)[2]	Estimated Design Capacity (Tons)[2]
EU-1 Permit No. 78	Unknown	1972	1987	1,067,685	1,067,685	--
EU-2 Permit No. 469 Cells 8 and 9	30	1987	1995	1,505,203	1,505,203	--
EU-3 Permit No. 469 Cells 8 and 9	30	1995	2003	188,084	188,084	--
EU-4 Permit No. 469 Phases I-IX	38	2003	Active	3,696,740	5,334,000	3,467,100

[1] Previous design capacity as stated in the Design Capacity Report, revised 4/30/04.
[2] Design capacity as stated in the application to amend Solid Waste Permit No. 469, submitted to VDEQ on 8/1/07.amended on 11/14/03.
[3] Mass-based design capacity for EU-4 is calculated assuming in-place density equal to 1,300 lb./cy.

Attachment B

2013 Emissions Inventory and Summary

Commonwealth of Virginia
Department of Environmental Quality
Consolidated Plant Emissions Report

Registration No: 81401 FIPS County Code: 171 Year of Emissions: 2013

Plant Name: Shenandoah County Sanitary Landfill - Edinburg Plant ID: 00086 Last Annual Update: 2013

GENERAL INFORMATION

Facility Name: Shenandoah County Landfill - Edinburg

Location Address: 349 Landfill Rd
Edinburg VA 22824

Mailing Address: 349 Landfill Road
Edinburg VA 22824

Anuual Update Contact: Dellinger, Brad

Phone Number: (540) 984 - 8573

Principal Product: refuse

Comments:

UTM Zone: 17

UTM Vertical (KM): 4302.7

UTM Horizontal (KM): 713.2

Latitude: 38 o 50 ' 59 "

Longitude: -78 o 32 ' 31 "

Property Area (Acres): 214

No. of Employees: 21

Primary SIC Code: 4953

Facility Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
VOC	0.4000000000		
PM 2.5	0.3000000000		
NO2	0.2196400000		
PM 10	2.7000000000		
NH3	0.0000000000		
TRS	0.4000000000		
CO	1.1951000000		
TNMOC	0.9000000000		
PM	2.7000000000		

STACK INFORMATION:

Number: 1 Description: Landfill (VDEQ #1469 amended)

Stack Height(ft): 0

Stack Diameter(ft): 0

Exit Gas Temperature(F): 0

Gas Flow Rate(ACFM): 0

Exit Gas Velocity(ft/sec): 0

Stack Type: F

Plume Height(ft): 30

Permitted Equipment: N

UTM Zone: 17

UTM Vertical(KM): 4302.76

UTM Horizontal(KM): 713.32

GEP Stack Height: 0

GEP Building Height: 0

GEP Building Length: 0

GEP Bulding Width: 0

Rough Terrain: N

Elevation (ft above MSL): 800

Stack Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
PM	2.7000000000		
PM 10	2.7000000000		

PM 2.5	0.3000000000
TNMOC	0.2000000000
TRS	0.1000000000
VOC	0.1000000000

POINT INFORMATION: Number: 1 Description: Landfill (EU-1 Closed permit 78)

Design Capacity & Units: 0
Per

State Sensitive: N
Permitted Equipment: N
Space Heat (%): 0
Air Program: Sub Part

% Throughput: DEC-FEB: 25 MAR-MAY: 25 JUN-AUG: 25 SEP-NOV: 25
Operating Schedule: Hours/Day: 8 Days/Week: 6 Hours/Year: 2496

Point Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
PM	2.7000000000		
PM 10	2.7000000000		
PM 2.5	0.3000000000		
TNMOC	0.2000000000		
TRS	0.1000000000		
VOC	0.1000000000		

SEGMENT INFORMATION: Number: 1 Description: Landfill (EU-1 Closed permit 78)

Source Classification Code: 50100402
Actual Annual Throughput: 8.5
Max. Hourly Operation Rate: 0
State Sensitive: N
Permitted Equipment: N
Insignificant Activity: N
Pollution Prevention: N

SCC Description: Fugitive Emissions
SCC Units: ACRES OF LANDFILL
Trace%: 0 Ash%: 0 Sulfur%: 0
Heat Content (MMBTU): 0
Throughput Limit:
Throughput Unit:

Pollution Prevention Comments:
Segment Comments:

Segment Emissions

Pollutant	Method	Factor	A/S/T	Primary Control	Secondary Control	Overall Efficiency %	Emissions Value (tpy)	Allowable Value	Units
TNMOC	Source test (user calc)	0.0000000000					0.20000000		

Emissions are for the total facility			
TRS	Source test (user calc)	0.0000000000	0.10000000
VOC	Source test (user calc)	0.0000000000	0.10000000
Emissions are for the total facility			

SEGMENT INFORMATION: Number: 2 Description: Fugitive Emissions

Source Classification Code: 50100401
Actual Annual Throughput: 77549
Max. Hourly Operation Rate: 0
State Sensitive: N
Permitted Equipment: N
Insignificant Activity: N
Pollution Prevention: N

SCC Description: Unpaved Road Traffic
SCC Units: Cu. Yd. Waste X Miles From Gate to Dump
Trace%: 0 Ash%: 0 Sulfur%: 0
Heat Content (MMBTU): 0
Throughput Limit:
Throughput Unit:

Pollution Prevention Comments:
Segment Comments:

Segment Emissions

Pollutant	Method	Factor	A/S/T	Primary Control	Secondary Control	Overall Efficiency %	Emissions Value (tpy)	Allowable Value	Units
PM 10	Material balance (user calc)	0.0000000000		000			2.70000000		
Emissions are for the total facility				000 = UNCONTROLLED					
PM	Material balance (user calc)	0.0000000000					2.70000000		
Emissions are for the total facility									
PM 2.5	Material balance (user calc)	0.0000000000					0.30000000		
Emissions are for the total facility									

STACK INFORMATION: Number: 2 Description: Landfill VDEQ#969

Commonwealth of Virginia
Department of Environmental Quality
Consolidated Plant Emissions Report

Stack Height(ft):	0
Stack Diameter(ft):	0
Exit Gas Temperature(F):	0
Gas Flow Rate(ACFM):	0
Exit Gas Velocity(ft/sec):	0
Stack Type:	F
Plume Height(ft):	30
Permitted Equipment:	N

UTM Zone:	17
UTM Vertical(KM):	4302.76
UTM Horizontal(KM):	713.32
GEP Stack Height:	0
GEP Building Height:	0
GEP Building Length:	0
GEP Bulding Width:	0
Rough Terrain:	N
Elevation (ft above MSL):	800

Stack Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
TNMOC	0.2000000000		
TRS	0.1000000000		
VOC	0.1000000000		

POINT INFORMATION: Number: 2 Description: Landfill (VDEQ #969) (EU-2 closed permit 469)

Design Capacity & Units: 0
Per

State Sensitive:	N
Permitted Equipment:	N
Space Heat (%):	0
Air Program	Sub Part

% Throughput: DEC-FEB: 25 MAR-MAY: 25 JUN-AUG: 25 SEP-NOV: 25
Operating Schedule: Hours/Day: 8 Days/Week: 6 Hours/Year: 2496

Point Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
TNMOC	0.2000000000		
TRS	0.1000000000		
VOC	0.1000000000		

SEGMENT INFORMATION: Number: 1 Description: Landfill (EU-2 closed permit 469)

Source Classification Code:	50100402
Actual Annual Throughput:	17
Max. Hourly Operation Rate:	0
State Sensitive:	N
Permitted Equipment:	N
Insignificant Activity:	N
Pollution Prevention:	N

SCC Description: Fugitive Emissions
SCC Units: ACRES OF LANDFILL
Trace%: 0 Ash%: 0 Sulfur%: 0
Heat Content (MMBTU): 0
Throughput Limit:
Throughput Unit:

Commonwealth of Virginia
Department of Environmental Quality
Consolidated Plant Emissions Report

Pollution Prevention Comments:

Segment Comments:

Segment Emissions

Pollutant	Method	Factor	A/S/T	Primary Control	Secondary Control	Overall Efficiency %	Emissions Value (tpy)	Allowable Value	Units
TNMOC	Source test (user calc)	0.0000000000					0.20000000		
TRS	Source test (user calc)	0.0000000000					0.10000000		
VOC	Source test (user calc)	0.0000000000					0.10000000		

STACK INFORMATION: Number: 3 Description: Landfill VDEQ#969

Stack Height(ft):	0	UTM Zone:	17
Stack Diameter(ft):	0	UTM Vertical(KM):	4302.76
Exit Gas Temperature(F):	0	UTM Horizontal(KM):	713.32
Gas Flow Rate(ACFM):	0	GEP Stack Height:	0
Exit Gas Velocity(ft/sec):	0	GEP Building Height:	0
Stack Type:	F	GEP Building Length:	0
Plume Height(ft):	30	GEP Bulding Width:	0
Permitted Equipment:	N	Rough Terrain:	N
		Elevation (ft above MSL):	800

Stack Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
TNMOC	0.3000000000		
TRS	0.1000000000		
VOC	0.1000000000		

POINT INFORMATION: Number: 3 Description: Landfill (VDEQ #969 - closed 469 -1996 EU-3 Vert. Expansion)

Design Capacity & Units: 0 Per

State Sensitive:	N		
Permitted Equipment:	N		
Space Heat (%):	0		
Air Program	Sub Part		

% Throughput: DEC-FEB: 25 MAR-MAY: 25 JUN-AUG: 25 SEP-NOV: 25

Operating Schedule: Hours/Day: 8 Days/Week: 6 Hours/Year: 2496

Point Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units

Commonwealth of Virginia
Department of Environmental Quality
Consolidated Plant Emissions Report

TNMOC	0.3000000000
TRS	0.1000000000
VOC	0.1000000000

SEGMENT INFORMATION: Number: 1 Description: Landfill closed 469 - (EU-3 Vert. Expansion)

Source Classification Code: 50100402
SCC Description: Fugitive Emissions
Actual Annual Throughput: 17
Max. Hourly Operation Rate: 0
SCC Units: ACRES OF LANDFILL
State Sensitive: N
Trace%: 0 Ash%: 0 Sulfur%: 0
Permitted Equipment: N
Heat Content (MMBTU): 0
Insignificant Activity: N
Throughput Limit:
Pollution Prevention: N
Throughput Unit:

Pollution Prevention Comments:
Segment Comments:

Segment Emissions

Pollutant	Method	Factor	A/S/T	Primary Control	Secondary Control	Overall Efficiency %	Emissions Value (tpy)	Allowable Value	Units
TNMOC	Source test (user calc)	0.0000000000					0.30000000		
TRS	Source test (user calc)	0.0000000000					0.10000000		
VOC	Source test (user calc)	0.0000000000					0.10000000		

STACK INFORMATION: Number: 4 Description: Landfill (VDEQ #469 active section)

Stack Height(ft):	0	UTM Zone:	17
Stack Diameter(ft):	0	UTM Vertical(KM):	4302.76
Exit Gas Temperature(F):	0	UTM Horizontal(KM):	713.32
Gas Flow Rate(ACFM):	0	GEP Stack Height:	0
Exit Gas Velocity(ft/sec):	0	GEP Building Height:	0
Stack Type:	F	GEP Building Length:	0
Plume Height(ft):	30	GEP Bulding Width:	0
Permitted Equipment:	N	Rough Terrain:	N
		Elevation (ft above MSL):	800

Stack Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
TNMOC	0.2000000000		
TRS	0.1000000000		
VOC	0.1000000000		

POINT INFORMATION: Number: 4 Description: Landfill (VDEQ #469 active section)

Design Capacity & Units: 0
Per

State Sensitive:	N		
Permitted Equipment:	N		
Space Heat (%):	0		
Air Program	Sub Part		

% Throughput: DEC-FEB: 25 MAR-MAY: 25 JUN-AUG: 25 SEP-NOV: 25
Operating Schedule: Hours/Day: 8 Days/Week: 6 Hours/Year: 2496

Point Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
TNMOC	0.2000000000		
TRS	0.1000000000		
VOC	0.1000000000		

SEGMENT INFORMATION: Number: 1 Description: Landfill (Active)

Source Classification Code:	50100402	SCC Description:	Fugitive Emissions
Actual Annual Throughput:	10.5	SCC Units:	ACRES OF LANDFILL
Max. Hourly Operation Rate:	0	Trace%: 0	Ash%: 0 Sulfur%: 0
State Sensitive:	N	Heat Content (MMBTU):	0
Permitted Equipment:	N	Throughput Limit:	
Insignificant Activity:	N	Throughput Unit:	
Pollution Prevention:	N		

Commonwealth of Virginia
Department of Environmental Quality
Consolidated Plant Emissions Report

Pollution Prevention Comments:

Segment Comments: Active part of 469 permit

Segment Emissions

Pollutant	Method	Factor	A/S/T	Primary Control	Secondary Control	Overall Efficiency %	Emissions Value (tpy)	Allowable Value	Units
TNMOC	Source test (user calc)	0.0000000000					0.20000000		
TRS	Source test (user calc)	0.0000000000					0.10000000		
VOC	Source test (user calc)	0.0000000000					0.10000000		

STACK INFORMATION: Number: 5 Description: Wood Chippers (2)

Stack Height(ft):	0
Stack Diameter(ft):	0
Exit Gas Temperature(F):	0
Gas Flow Rate(ACFM):	0
Exit Gas Velocity(ft/sec):	0
Stack Type:	F
Plume Height(ft):	1
Permitted Equipment:	Y

UTM Zone:	17
UTM Vertical(KM):	4302.76
UTM Horizontal(KM):	713.32
GEP Stack Height:	0
GEP Building Height:	0
GEP Building Length:	0
GEP Bulding Width:	0
Rough Terrain:	N
Elevation (ft above MSL):	800

Stack Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
CO	1.1951000000		
NH3	0.0000000000		
NO2	0.2196400000		
VOC	0.0000000000		

POINT INFORMATION: Number: 5 Description: Wood Chippers (2)

Design Capacity & Units: 0 Per

% Throughput: DEC-FEB: 25 MAR-MAY: 25 JUN-AUG: 25 SEP-NOV: 25

Operating Schedule: Hours/Day: 8 Days/Week: 6 Hours/Year: 2496

State Sensitive:	N
Permitted Equipment:	Y
Space Heat (%):	0
Air Program	Sub Part

Commonwealth of Virginia
Department of Environmental Quality
Consolidated Plant Emissions Report

Point Emissions

Pollutant	Emissions Value (tpy)	Allowable Value	Units
CO	1.1951000000		
NH3	0.0000000000		
NO2	0.2196400000		
VOC	0.0000000000		

SEGMENT INFORMATION: Number: 1 Description: 2 - Wood Chippers

Source Classification Code: 30700799
Actual Annual Throughput: 0
Max. Hourly Operation Rate: 0
State Sensitive: N
Permitted Equipment: N
Insignificant Activity: N
Pollution Prevention: N

SCC Description: Other Not Classified
SCC Units: Tons Processed
Trace%: 0 Ash%: 0 Sulfur%: 0
Heat Content (MMBTU): 0
Throughput Limit:
Throughput Unit:

Pollution Prevention Comments:
Segment Comments:

Segment Emissions

Pollutant	Method	Factor	A/S/T	Primary Control	Secondary Control	Overall Efficiency %	Emissions Value (tpy)	Allowable Value	Units
CO	Source test (user calc)	0.0000000000					0.00000000		
NO2	Source test (user calc)	0.0000000000					0.00000000		
VOC	Source test (user calc)	0.0000000000					0.00000000		

SEGMENT INFORMATION: Number: 2 Description: Compost Facility

Source Classification Code: 50100402
Actual Annual Throughput: 0
Max. Hourly Operation Rate: 0
State Sensitive: N
Permitted Equipment: N

SCC Description: Fugitive Emissions
SCC Units: ACRES OF LANDFILL
Trace%: 0 Ash%: 0 Sulfur%: 0

Heat Content (MMBTU): 0

Insignificant Activity: N
Pollution Prevention: N

Throughput Limit:
Throughput Unit:

Pollution Prevention Comments:
Segment Comments:

Segment Emissions

Pollutant	Method	Factor	A/S/T	Primary Control	Secondary Control	Overall Efficiency %	Emissions Value (tpy)	Allowable Value	Units
NH3	Engr judgement (user calc)	0.0000000000					0.00000000		
VOC	Engr judgement (user calc)	0.0000000000					0.00000000		

SEGMENT INFORMATION: Number: 3 Description: 8-inch Utility Flare

Source Classification Code: 50100410
Actual Annual Throughput: 12.92
Max. Hourly Operation Rate: 0
State Sensitive: N
Permitted Equipment: N
Insignificant Activity: N
Pollution Prevention: N

SCC Description: Waste Gas Destruction: Waste Gas Flares
SCC Units: MILLION CUBIC FEET BURNED
Trace%: 0 Ash%: 0 Sulfur%: 0
Heat Content (MMBTU): 0
Throughput Limit:
Throughput Unit:

Pollution Prevention Comments:
Segment Comments:

Commonwealth of Virginia
Department of Environmental Quality
Consolidated Plant Emissions Report

Segment Emissions

Pollutant	Method	Factor	A/S/T	Primary Control	Secondary Control	Overall Efficiency %	Emissions Value (tpy)	Allowable Value	Units
NO2	Supplied factor (auto calc)	34.0000000000					0.21964000		
CO	Supplied factor (auto calc)	185.0000000000					1.19510000		

Attachment C

Minor New Source Review Permit dated August 6, 2004,
as amended February 10, 2009

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

VALLEY REGIONAL OFFICE
4411 Early Road, P.O. Box 3000, Harrisonburg, Virginia 22801
(540) 574-7800 Fax (540) 574-7878
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

Amy Thatcher Owens
Regional Director

February 10, 2009

Mr. Brad Dellinger
Director, Department of Solid Waste Management
Shenandoah County Sanitary Landfill
349 Landfill Road
Edinburg, VA 22824

Location: Shenandoah County
Registration No.: 81401
Plant ID No.: 51-171-0086

Dear Mr. Dellinger:

Attached is a permit to modify and operate a municipal solid waste landfill in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This permit replaces your permit dated August 6, 2004. This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and civil penalty. Please read all permit conditions carefully.

The Department of Environmental Quality (DEQ) deemed the application complete on August 7, 2008 and has determined that the application meets the requirements of 9 VAC 5-80-1290 for a significant amendment to a new source review permit. This permit approval to modify and operate shall not relieve Shenandoah County Sanitary Landfill of the responsibility to comply with all other local, state, and federal permit regulations.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-200 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

MR BRAD DELLINGER
DIRECTOR, DEPT OF SOLID WASTE MGMT
SHENANDOAH COUNTY SANITARY LANDFILL
349 LANDFILL ROAD
EDINBURG VA 22824

COMPLETE THIS SECTION ON DELIVERY

A. Signature ☐ Agent ☑ Addressee
X Rebecca E. Kingan

B. Received by (*Printed Name*) Rebecca E Kingan C. Date of Delivery 2-11-09

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

2. 7008 1140 0004 6203 8226 NSR permit 2-10-09 81401

PS Form 3811, February 2004 Domestic Return Receipt KTH 102595-02-M-1540

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

7008 1140 0004 6203 8226

Postage	$ 1.17
Certified Fee	2.70
Return Receipt Fee (Endorsement Required)	2.20
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.07

Postmark Here
USPS FEB 10 2009 HAR

MR BRAD DELLINGER
DIRECTOR, DEPT OF SOLID WASTE MGMT
SHENANDOAH COUNTY SANITARY LANDFILL
349 LANDFILL ROAD
EDINBURG VA 22824

PS Form 3800, August 2006 See Reverse for Instructions

occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director
Department of Environmental Quality
P. O. Box 1105
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact Kathleen T. Haddock at 540-574-7863 or via email at **kthaddock@deq.virginia.gov**.

Sincerely,

Larry M. Simmons
Deputy Regional Director

Attachments: Permit
NSPS, Subpart WWW, via email
NESHAP, Subpart AAAA, via email

cc: Director, OAPP (electronic file submission)
Manager, Data Analysis (electronic file submission)
Barry Brandon, Inspector, Air Compliance]

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
STATIONARY SOURCE PERMIT TO MODIFYAND OPERATE

This permit includes designated equipment subject to New Source Performance Standards (NSPS) and to National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills

This permit replaces your permit dated August 6, 2004.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Shenandoah County Sanitary Landfill
349 Landfill Road
Edinburg, Virginia 22824
Registration No.: 81401
Plant ID No.: 51-171-0086

is authorized to modify and operate

a municipal solid waste landfill

located at

349 Landfill Road
Edinburg, Virginia

in accordance with the Conditions of this permit.

Approved on August 6, 2004

Amended on February 10, 2009

Deputy Regional Director, Valley Regional Office

Permit consists of 11 pages.
Permit Conditions 1 to 29.

INTRODUCTION

This permit approval is based on the permit applications dated June 17, 2008, May 7, 2004, August 26, 2003, and July 30, 2002, including supplementary information dated April 30, 2004, October 17, 2003, September 27, 2002, and September 18, 2002. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-10-20 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

PROCESS REQUIREMENTS

1. **Equipment List** - Equipment at this facility consists of:

Equipment to be Modified			
Reference No.	**Equipment Description**	**Rated Capacity**	**Federal Requirements**
EU-4	Subtitle D Expansion Area, Phases I-IX	5,334,000 yd^3 (3,467,100 tons)	40 CFR 60, Subpart WWW; 40 CFR 63, Subpart AAAA

Equipment permitted prior to the date of this permit			
Reference No.	**Equipment Description**	**Rated Capacity**	**Federal Requirements**
EU-1	Landfill Cell opened 1972, closed 1987	1,067,685 yd^3 (640,611 tons)	40 CFR 60, Subpart WWW, 40 CFR 63, Subpart AAAA
EU-2	Landfill Cell opened 1988, closed 1995. Solid Waste Permit No. 469	1,505,203 yd^3 (903,122 tons)	
EU-3	Landfill Cell opened 1996, closed 2003 Solid Waste Permit No. 469	188,084 yd^3 (112,850 tons)	
EU-5	Surface and Access Roads	N/A	N/A

Equipment exempt from permitting		
Reference No.	**Equipment Description**	**Exemption Citation**
EU-6	MSW Leachate Storage Lagoon	9 VAC 5-80-720 B
EU-7	Two (2) diesel-fired Wood Chippers	9 VAC 5-80-720 B
EU-8	Diesel-fired Tire Shredder	9 VAC 5-80-720 B
EU-9	Above-ground fuel storage tanks	9 VAC 5-80-720 B
EU-10	Co-compost facility	9 VAC 5-80-720 B

Specifications included in the permit under this condition are for informational purposes only and do not form enforceable terms or conditions of the permit.
(9 VAC 5-80-1180 D 3)

2. **Design Capacity** - The total design capacity of the MSW landfill shall not exceed 8.095 million cubic yards (6.188 million cubic meters). A change in the design capacity may require a permit to modify and operate.
(9 VAC 5-80-1180)

3. **Emissions Testing** - The municipal solid waste landfill shall be modified so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Sampling ports shall be provided at the appropriate locations and safe sampling platforms and access shall be provided.
(9 VAC 5-50-30 F and 9 VAC 5-80-1180)

4. **Landfill Gas (LFG) Collection and Control System: Design and Operational Standards** The permittee shall install a LFG collection and control system that captures the gas generated within the landfill as required by 40 CFR §60.752 (b) (2) (ii) (A) or (B) and 40 CFR §60.752 (b) (2) (iii) within 30 months after the first annual non methane organic compounds (NMOC) emission rate report, required in Condition 15, in which the NMOC emission rate equals or exceeds 50 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the NMOC emission rate is less than 50 megagrams per year.
(9 VAC 5-50-410 and 40 CFR §60.752 (b))

5. **Emission Controls** - Unless otherwise specified, fugitive dust emission controls shall include the following or equivalent as a minimum:

   a. Dust from grading, cell construction, waste compaction, application of daily cover, wood waste chipping operations, storage piles and traffic areas shall be controlled by wet suppression or equivalent (as approved by the DEQ) control measures;

   b. All material being stockpiled shall be kept moist to control dust during storage and handling, or covered to minimize emissions;

c. Dust from haul roads shall be controlled by wet suppression and prompt removal of dried sediment resulting from soil erosion and dirt spilled or tracked onto paved surfaces within the landfill;

d. Reasonable precautions shall be taken to prevent deposition of dirt on public roads and subsequent dust emissions. Dirt spilled or tracked onto paved surfaces shall be promptly removed to prevent particulate matter from becoming airborne.

(9 VAC 5-80-1180 and VAC 5-50-90)

6. **Dust Control Plan** - In order to minimize the duration and frequency of excess emissions, the permittee shall implement the DEQ approved Dust Control Plan which outlines the preventive measures to be implemented for dust control at the landfill. The plan shall include the following minimum requirements as approved by DEQ:

   a. Identification of the personnel responsible for overseeing dust control;

   b. Description and the frequency of measures to be taken to prevent excess emissions from grading, cell construction, waste compaction and daily cover application;

   c. Description and the frequency of measures to be taken to prevent excess emissions from storage piles and stockpiling operations;

   d. Description and the frequency of measures to be taken to prevent dust from haul roads and other unpaved surfaces, and description and the frequency of measures to be taken to prevent deposition of dirt on paved surfaces within the landfills and access roads entering the landfill.

   (9 VAC 5-80-1180)

7. **Emissions Calculations** - The permittee shall use either of the following equations (Equation 1 or Equation 2) to calculate the annual NMOC emission rate. The default values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_O, and 4000 parts per million by volume as hexane for C_{NMOC}. If obtained, the site-specific value for C_{NMOC}, as determined by using the procedure specified in Condition 10, and/or the site-specific value for k, as determined by using the procedure specified in Condition 11, shall be used in lieu of the default value for C_{NMOC} and/or k in calculating the NMOC emission rate.

   a. Equation 1 shall be used if the actual year-to-year solid waste acceptance rate is known:

$$M_{NMOC} = \sum_{i=1}^{n} 2kL_O M_i (e^{-kt_i})(C_{NMOC})(3.6x10^{-9})$$

.....Equation 1

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year
k = methane generation rate constant, year $^{-1}$
L_O = methane generation potential, cubic meters per megagram solid waste
M_i = mass of solid waste in the i^{th} section, megagrams
t_i = age of the i^{th} section, years
C_{NMOC} = concentration of NMOC, parts per million by volume as hexane
$3.6x10^{-9}$ = conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained;

b. Equation 2 shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{NMOC} = 2L_O R(e^{-kc} - e^{-kt})(C_{NMOC})(3.6x10^{-9})$$

.....Equation 2

M_{NMOC} = mass emission rate of NMOC from the landfill, megagrams per year
L_O = methane generation potential, cubic meters per megagram solid waste
R = average annual acceptance rate, megagrams per year
k = methane generation rate constant, year $^{-1}$
t = age of the landfill, years
C_{NMOC} = concentration of NMOC, parts per million by volume as hexane
c = time since closure, years (for an active landfill c = 0 and $e^{-kc} = 1$)
$3.6x10^{-9}$ = conversion factor

The mass of nondegradable solid waste may be subtracted from the average annual acceptance rate when calculating a value for R, if documentation of the nature and amount of such wastes is maintained.

(9 VAC 5-50-410 and 40 CFR §60.754 (a) (1))

OPERATING/ EMISSION LIMITATIONS

8. **Visible Emission Limit** - Visible emissions from the facility shall not exceed 20% opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A), except for one six-minute period in any one hour which shall not exceed 30% opacity.
(9 VAC 5-50-80)

9. **Requirements by Reference** - Except where this permit is more restrictive than the applicable requirement, the MSW landfill shall be operated in accordance with 40 CFR 60, Subpart WWW and 40 CFR 63, Subpart AAAA.
(9 VAC 5-50-400, 9 VAC 5-50-410, 9 VAC 5-60-90, and 9 VAC 5-60-100)

TESTING

10. **Tier 2 Testing** - When determining the Tier 2 site-specific NMOC concentration, the permittee shall use the following sampling procedure. The permittee shall install at least two sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The permittee shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25C of Appendix A of 40 CFR Part 60 or Method 18 of Appendix A of 40 CFR Part 60. If using Method 18 of Appendix A of 40 CFR Part 60, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). If composite sampling is used, equal volumes shall be taken from each sample probe. If more than the required number of samples is taken, all samples shall be used in the analysis. The permittee shall divide the NMOC concentration from Method 25C of Appendix A of 40 CFR Part 60 by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Valley Regional Office within 45 days after test completion.
(9 VAC 5-50-410 and 40 CFR §60.754 (a) (3))

11. **Tier 3 Testing–** The Tier 3 site-specific methane generation rate constant shall be determined using the procedure provided in 40 CFR Part 60, Appendix A, Method 2E. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Valley Regional Office within 45 days after test completion.
(9 VAC 5-50-410 and 40 CFR §60.754 (a) (4))

12. **Alternate Method Testing** – The permittee may use other methods to determine the NMOC concentration or a site-specific methane rate generation constant as an alternative to the methods required in Conditions 10 and 11 if the method has been approved by the EPA.
(9 VAC 5-50-410 and 40 CFR §60.754 (a) (5))

CONTINUING COMPLIANCE DETERMINATION

13. **Visual Survey** - At least daily, the permittee shall visually survey the trafficable roads at the site and landfill activities for any sources of excessive fugitive emissions. For the purpose of this survey, excessive emissions are considered to be any visible emissions that leave the facility site boundaries. The presence of excessive fugitive emissions shall require further investigation as to the cause of the emissions and timely corrective action shall be taken. If water is used to control the fugitive dust emissions, the permittee shall take care not to create a water quality problem from surface water runoff. All observations and corrective actions taken shall be logged and recorded.
(9 VAC 5-80-1180)

RECORDS

14. **On Site Records** - The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, Valley Regional Office. These records shall include, but are not limited to:

    a. Readily accessible, on-site records of the maximum design capacity;

    b. Annual calculated mass emission rate of NMOC from the landfill;

    c. The current amount of solid waste in-place;

    d. The year-by-year or average waste acceptance rate;

    e. Site-specific values for C_{NMOC} and k, if obtained;

    f. Age of landfill;

    g. Description, location, amount, and placement date of all nondegradable refuse including asbestos and demolition refuse placed in landfill areas, which are excluded from landfill gas estimation;

    h. Installation date and location of all vents;

    i. A copy of the DEQ-approved Dust Control Plan;

    j. Daily logs of the visual survey of the trafficable roads at the site and landfill activities to include the following:

        i. The date, time, and name of the person performing each inspection;

        ii. Whether or not excessive fugitive emissions are observed and the suspected cause of such emissions; and

        iii. The date, time, and type of corrective actions taken.

    These records shall be available for inspection by the DEQ and shall be current for the most recent five years. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.
    (9 VAC 5-80-1180, 9 VAC 5-50-50, 9 VAC 5-50-410 and 40 CFR §60.758)

NOTIFICATION AND REPORTING

15. **Annual NMOC Emission Report** - Not later than April 15 of each year, the permittee must submit an annual NMOC emission rate report to the Director, Valley Regional Office. The NMOC emission rate shall be calculated in accordance with the methodology contained in Condition 7. The report shall include all data, calculations, sample reports and measurements used to estimate the emissions.
(9 VAC 5-50-410 and 40 CFR §60.757 (b))

16. **Requirements When Reported NMOC Emission Rate > 50 Mg/yr** - If the reported NMOC emission rate, in the annual report, is equal to or exceeds 50 megagrams per year, the permittee shall:

    a. Submit a LFG gas collection and control system design plan as per 40 CFR §60.752 (b) (2); or

    b. Within 180 days of the emission rate report in Condition 15, demonstrate, using a site-specific NMOC concentration (Tier 2), that NMOC emissions do not equal or exceed 50 megagrams per year, submit a revised NMOC emission rate report, resume annual NMOC emission rate reporting, and retest the site-specific NMOC concentration every 5 years.

    (9 VAC 5-50-410, 40 CFR §60.752 (b) (2) and 40 CFR §60.757 (c) (1))

17. **Requirements When NMOC Emission Rate > 50 Mg/yr (when using site-specific C_{NMOC})** - If, using a site-specific NMOC concentration, the NMOC emission rate is equal to or exceeds 50 megagrams per year, the permittee shall:

    a. Submit a LFG collection and control system design plan as per 40 CFR §60.752 (b) (2); or

    b. Within 1 year of the emission rate report in Condition 15, demonstrate using a site-specific methane generation constant (Tier 3), that NMOC emissions do not equal or exceed 50 megagrams per year, submit a revised NMOC emission rate report and resume annual NMOC emission rate reporting.

    (9 VAC 5-50-410, 40 CFR §60.752 (b) (2) and 40 CFR §60.757 (c) (2))

18. **LFG Collection and Control System Design Plan** - The LFG collection and control system design plan required by Condition 16 or Condition 17 shall be submitted to the Director, Valley Regional Office, within one year after submitting the NMOC emission rate report required in Condition 15, reporting an NMOC emission rate which equals or exceeds 50 megagrams per year.
(9 VAC 5-50-410 and 40 CFR §60.752 (b) (2) (i))

19. **Solid Waste Permit Amendment** - If the permittee is required to install a gas collection and control system according to the provisions of 9 VAC 5-50-410 Subpart WWW and 9 VAC 5-60-100, Subpart AAAA, the permittee shall apply for a solid waste permit amendment in accordance with Part VII (9 VAC 20-80-480 et seq.) of 9 VAC 20 Chapter 80 (Solid Waste Management Regulations).
(9 VAC 5-80-1180)

20. **Closure Report** - The permittee shall submit a closure report to the Director, Valley Regional Office, within 30 days of the date the MSW landfill stopped accepting waste.
(9 VAC 5-50-410 and 40 CFR §60.757 (d))

GENERAL CONDITIONS

21. **Permit Invalidation** – This permit to modify the landfill shall become invalid, unless an extension is granted by the DEQ, if:

    a. A program of continuous modification is not commenced within the latest of the following:

        i. 18 months from the date of this permit;

        ii. Nine months from the date that the last permit or other authorization was issued from any other governmental entity;

        iii. Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or

    b. A program of modification is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.

    (9 VAC 5-80-1210)

22. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:

    a. Knowingly makes material misstatements in the permit application or any amendments to it;

    b. Fails to comply with the conditions of this permit;

    c. Fails to comply with any emission standards applicable to a permitted emissions unit, ;

    d. Causes emissions from the stationary source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard; or

e. Emission standards or emission limitations, in the State Implementation Plan in effect at the time Fails to operate in conformance with any applicable control strategy; including any an application for this permit is submitted.

(9 VAC 5-80-1210 F)

23. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;

b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;

c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and

d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
(9 VAC 5-170-130 and 9 VAC 5-80-1180)

24. **Maintenance/Operating Procedures** – At all times, including periods of start-up, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to fugitive dust emissions:

a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance;

b. Maintain an inventory of spare parts;

c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum;

d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.
(9 VAC 5-50-20 E and 9 VAC 5-80-1180 D)

25. **Record of Malfunctions** – The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.
(9VAC 5-20-180 J and 9 VAC 5-80-1180 D)

26. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Valley Regional Office of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Valley Regional Office.
(9 VAC 5-20-180 C and 9 VAC 5-80-1180)

27. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.
(9 VAC 5-20-180 I and 9 VAC 5-80-1180)

28. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Valley Regional Office of the change of ownership within 30 days of the transfer.
(9 VAC 5-80-1240)

29. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-80-1180)

Attachment D

Tier 2 Testing Report, dated February 11, 2013

Environmental Consultants

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Reston, VA 20190-5282

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SCS ENGINEERS

February 11, 2013
File No. 02206505.00

electronic submittal

Janardan Pandey
Air Permits Manager
Virginia Department of Environmental Quality
Valley Regional Office
P.O. Box 3000
Harrisonburg, VA 22801

Subject: NSPS Tier 2 NMOC Emission Summary Report – 2013
Rockingham County Landfill: Harrisonburg, Virginia

Dear Mr. Pandey:

On behalf of Rockingham County, SCS Engineers (SCS) is pleased to submit this report summarizing landfill gas (LFG) Tier 2 sampling, analysis, and non-methane organic compound (NMOC) emission estimation for the Rockingham County Landfill in Harrisonburg, Virginia.

Descriptions of the field sampling activities, laboratory results, and annual NMOC emissions calculations are provided herein. In accordance with the U.S. Environmental Protection Agency's (EPA) New Source Performance Standards (NSPS), the NMOC emissions at the landfill were estimated to be less than the NSPS-threshold of 50 megagrams per year (Mg/yr) for 2012.

The modeling results are presented in **Attachment A**.

FIELD SAMPLING ACTIVITIES

SCS conducted field sampling on January 2, 2013 in accordance with the sampling protocol (dated November 6, 2012), the EPA's NSPS (40 CFR §60.754), and the landfill's air permit (Registration No. 81569)

A copy of the sampling protocol is presented in **Attachment B**.

A total of three samples, plus one backup, were collected in summa canisters from the main header pipe of the landfill's active LFG collection system. Prior to sampling, LFG quality was measured and recorded using a calibrated LandTec GEM 2000 infrared gas analyzer. The collected samples were shipped via overnight courier to AtmAA, Inc. in Calabasas, California for analyses via EPA Method 3C (for oxygen and/or nitrogen content) and EPA Method 25C (for total NMOCs).

LABORATORY RESULTS

A summary of the laboratory NMOC results is presented in **Table 1**.

Table 1. Laboratory NMOC Results

Lab No.	Sample ID	Total NMOCs as Carbon (ppmv)	Total NMOCs as Hexane (ppmv)
10033-1	LFG-1	1053	175
10033-2	LFG-2	1229	205
10033-3	LFG-3	1349	225
Site-Specific Average NMOC Concentration:			**201.7**

Based on the laboratory results, the average NMOC concentration at the landfill is 201.7 ppmv as hexane. Note that each of these samples had an oxygen content less than five percent, per EPA Method 25C; therefore, analysis of the backup sample was not necessary.

The laboratory results report, provided by AtmAA, Inc., is presented in **Attachment C**.

NMOC EMISSION ESTIMATION

Using the NMOC concentration of 201.7 ppmv, the annual NMOC emission estimates for the landfill were calculated following the procedures outlined in the air permit and 40 CFR §60.754 and utilizing the EPA's LandGEM model. Additional parameters, used in estimating the annual NMOC emissions, included:

- Site-specific quantity of waste disposed on an annual basis (megagrams, Mg).
- Methane generation potential, L_0 (cubic meters methane per Mg waste, m^3/Mg).
- Methane generation rate constant, k (yr^{-1}).

The methane generation potential and the methane generation rate constant are default values provided in the NSPS and are equal to 170 m^3/Mg and 0.05 yr^{-1}, respectively.

A summary of the estimated NMOC emissions from the landfill for 2013 and the next five years is presented in **Table 2**.

Table 2. Summary of Estimated Annual NMOC Emissions

Year	NMOC Emissions (Mg/yr)
2013	15.7
2014	17.1
2015	18.5
2016	19.7
2017	21.0
2018	22.1

Note that a projected waste disposal rate of 200,000 tons/yr was assumed for 2013 and the next five years. This projection is based on the maximum annual waste disposal rate recorded at the landfill throughout the site's history, plus a conservative safety factor.

The complete results of estimated NMOC emissions for the landfill between 2013 and 2018 are presented in **Attachment A**.

FINDINGS AND RECOMMENDATIONS

The results of the model and emission estimates indicate that the annual NMOC emissions at the landfill are less than the NSPS-threshold of 50 Mg/yr of NMOCs. Further, based on an assumed future waste disposal rate of 200,000 tons/yr, the landfill is not expected to exceed the NSPS-threshold in the next five years.

In accordance with its air permit, the landfill will submit an annual NMOC emission rate report. Also, the NSPS requires that the site-specific Tier 2 NMOC concentration be re-evaluated every five years. As such, the next Tier 2 sampling must be conducted by January 2, 2018.

VELAP ACCREDITATION PROGRAM

In accordance with Virginia Code (1 VAC 30-40-20), beginning January 1, 2012, any analyses performed by a commercial laboratory for air compliance must be performed by a laboratory certified under the Virginia Environmental Laboratory Accreditation Program (VELAP). Per NSPS Subpart WWW and its air permit (Registration # 81569) the landfill is required to regularly test the NMOC concentration of its LFG. The site-specific NMOC concentration is used to calculate annual NMOC emission rates for evaluating the landfill's applicability to the various operational requirements of NSPS Subpart WWW, which apply to certain landfills with NMOC emission rates that exceed 50 Mg/yr.

Per NSPS Subpart WWW and its air permit, the landfill must use EPA Method 25 or 25C to determine the total NMOC concentration. EPA Method 18 may be used as an alternate to Methods 25 and 25C provided that, at a minimum, each compound listed in the EPA's AP-42, Table 2.4-1 is analyzed (minus mercury, hydrogen sulfide, and carbon monoxide). Analysis of each sample per Method 3C is also required to verify that it oxygen or nitrogen content is within the applicable limits.

There are no laboratories currently accredited to provide NMOC analyses of air samples under EPA Method 25 or 25C. There are two laboratories currently accredited under VELAP for EPA Method 18[1]: Airnova, Inc. and Enthalpy Analytical, Inc. However, Airnova is not certified under VELAP for EPA Method 18 to analyze any individual organic compounds as stipulated by NSPS Subpart WWW. And while Enthalpy Analytical is certified to analyze some individual compounds, it is only certified to analyze approximately 25 percent of those compounds identified in AP-42, Table 2.4-1. In fact, Enthalpy Analytical indicated to SCS that they do not have the capability to analyze all AP-42 compounds per EPA Method 18. Additionally, neither of these laboratories is certified to perform EPA Method 3C, necessary to verify that oxygen (or nitrogen) levels are within the respective test limits.

In summary, there are no laboratories VELAP-accredited to provide the full Tier 2 NMOC analyses in accordance with the landfill's air permit and Subpart WWW requirements.

SCS contacted a number of laboratories that provide the required Tier 2 LFG analyses, and most indicated that they did not intend to pursue VELAP certification. One laboratory, AtmAA, Inc.

1 As of Jan 10, 2013; http://www.dgs.state.va.us/LinkClick.aspx?fileticket=bNaDUg5QxDY%3d&tabid=1059

in Calabasas, California, was the only lab that indicated to SCS that it intended to consider pursuing VELAP certification for these test methods. Therefore, SCS utilized AtmAA to provide the required analyses. However, both at present and at the time of testing, AtmAA had not yet obtained its VELAP certification(s).

On August 13, 2012, Todd Alonzo, Environmental Manager II in the VDEQ's Office of Air Compliance, indicated that he called the Division of Consolidated Laboratory Services, the agency that certifies laboratories, and confirmed that no labs have applied for certification of Method 25C. SCS has subsequently had numerous correspondences with VDEQ and VELAP regarding laboratory accreditation issues. As of December 18, 2012, Ms. Cathy Westerman, VELAP manager, indicated that no laboratories had yet applied for the Tier 2 test methods.

In its March 27, 2012 guidance memo[1], VDEQ addresses this circumstance as follows:

> *If a VELAP certified laboratory does not exist for a required parameter or method, then the responsible party should consider use of an alternative method under the regulatory requirements if applicable and they should request that a laboratory obtain VELAP accreditation for the required parameter or method, but can continue to use a non-VELAP certified laboratory until a laboratory is certified for the required parameter or method. The responsible party should ensure prior to each sampling event that a VELAP-certified laboratory is not available prior to using a non-VELAP certified laboratory.*

It is SCS's opinion that the Tier 2 test was conducted in strict accordance with the November 6, 2012 protocol, the landfill's air permit, and NSPS Subpart WWW. Furthermore, it is our opinion that the County made every effort possible to utilize a VELAP-accredited laboratory for this testing, however it is clear that no certified laboratories exist for the required methods or alternative methods. Furthermore, SCS contacted a number of laboratories on the County's behalf, requesting that they pursue the VELAP certification; one laboratory, AtmAA Inc. indicated that it intends to consider pursing accreditation.

CLOSING

Following your review of this report, if you should have any questions or concerns, please do not hesitate to contact either of the undersigned at (703) 471-6150.

Sincerely,

Derek J. Dyer, E.I.T
Project Engineer
SCS ENGINEERS

Joshua G. Roth, P.E.
Project Director
SCS ENGINEERS

cc: Barry Hertzler, Rockingham County

Enclosures

1 Guidance Memo No. LPR-SW-03-2012 from Mr. Jeffrey A. Steers.

ATTACHMENT A

LANDGEM MODEL ESTIMATED NMOC EMISSIONS

ATTACHMENT A. ESTIMATED NMOC EMISSIONS
ROCKINGHAM COUNTY LANDFILL: HARRISONBURG, VIRGINIA

Year	Waste Disposal Rate (tons/yr)	Waste In-Place (tons)	Waste Disposal Rate (Mg/yr)	Waste In-Place (Mg)	NMOC Generation Rates (Mg/yr)
2013	200,000	2,817,674	181,437	2,556,151	15.7
2014	200,000	3,017,674	181,437	2,737,588	17.1
2015	200,000	3,217,674	181,437	2,919,025	18.5
2016	200,000	3,417,674	181,437	3,100,462	19.7
2017	200,000	3,617,674	181,437	3,281,898	21.0
2018	200,000	3,817,674	181,437	3,463,335	22.1

Site-Specific Average NMOC Concentration in LFG:	201.7	ppmv as hexane
Assumed Methane Concentration in LFG:	50%	
Selected Decay Rate Constant (k):	0.05	1/yr
Selected Ultimate Methane Recovery Rate (L_0):	170	m^3/Mg

ATTACHMENT B

TIER 2 PROTOCOL

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November 6, 2012
File No. 02206505.00

Janardan Pandey
Air Permits Manager
Virginia Department of Environmental Quality
Valley Regional Office
P.O. Box 3000
Harrisonburg, VA 22801

Subject: Proposed Tier 2 NMOC Sampling Protocol
Rockingham County Landfill: Harrisonburg, VA

Dear Mr. Pandey:

On behalf of Rockingham County, SCS Engineers is pleased to submit a protocol for Tier 2 sampling at the Rockingham County Landfill (Registration No. 81569) in Harrisonburg, VA. The EPA's New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills (NSPS Subpart WWW) apply to the site and require that the landfill calculate its NMOC emission rate annually. To accomplish this, NSPS Subpart WWW allows landfills to determine site-specific NMOC concentrations via Tier 2 sampling and laboratory analyses. SCS prepared the attached proposed sampling protocol in accordance with NSPS Subpart WWW requirements.

Note that per NSPS Subpart WWW, there are three test method options for determining total NMOC concentration: EPA Methods 18, 25 and 25C. In our experience, EPA Method 25C is clearly the most appropriate test method for determining total NMOC concentration in raw LFG. Further, Method 3C is required to determine the oxygen or nitrogen content in the LFG in accordance with NSPS limits. Under the new VELAP accreditation program, there are no laboratories currently certified (updated September 25, 2012) to perform the full testing program required by the NSPS under any of these EPA methods. More details are provided in the attached protocol.

Given the County's interest to maintain compliance with the applicable NMOC testing requirements of the NSPS Subpart WWW as well as its air permit (Registration No. 81569), it intends to conduct the sampling in accordance with the five-year schedule outlined in the NSPS. Given that no laboratories have the necessary certifications, it is proposed that samples be analyzed using a qualified laboratory highly experienced with these analyses and per the most appropriate EPA test method (Method 25C).

We respectfully request your prompt review and approval of this protocol. The sampling program is tentatively scheduled for late December 2012, provided the attached protocol is acceptable to the VDEQ. If you have any questions or require further information, please feel free to contact us at 703-471-6150.

Sincerely,

Derek J. Dyer, E.I.T.
Project Engineer
SCS ENGINEERS

Joshua G. Roth, P.E.
Project Director
SCS ENGINEERS

cc: Barry Hertzler, Rockingham County

Enclosure

ATTACHMENT A

ROCKINGHAM COUNTY LANDFILL
TIER 2 SAMPLING PROTOCOL

A Tier 2 sampling protocol, to determine the site-specific non-methane organic compound (NMOC) concentration in landfill gas (LFG) at the Rockingham County Landfill in Harrisonburg, Virginia, is presented below. Tier 2 testing was last completed in January 2008 at Rockingham County Landfill; per the NSPS Subpart WWW, Tier 2 testing results are valid for a period of five years to calculate the NMOC mass emission rate. Since an active and comprehensive LFG collection and flaring system is currently operated at the landfill, SCS proposes composite sampling program from the common header pipe before the gas moving or condensate removal equipment [per 40 CFR §60.754(a)(3)].

BACKGROUND

The Rockingham County Landfill currently operates an active and comprehensive LFG collection and flaring system. This system provides coverage throughout the closed areas of the landfill (Old Fill Parts 1 and 2) and the active areas of the landfill (Phases 1, 2 and 3) which contain waste that has been in-place for over two years.

TIER 2 SAMPLING PROGRAM

SCS Engineers (SCS) will conduct Tier 2 sampling and submit a current NMOC Emission Rate Report in accordance with the NSPS requirements. Tier 2 samples will be collected from a sampling port located prior to (i.e., upstream of) gas moving and condensate removal equipment such that the samples collected are representative of gas from the landfill mass. Samples will be drawn from the main header by vacuum into stainless steel "summa" canisters. For each Tier 2 sample, the following will be recorded: the collection times, beginning and ending cylinder vacuums, and sampling rate.

LFG quality will be measured and recorded using a LandTec GEM 2000 infrared gas analyzer (or equivalent) prior to collecting each Tier 2 sample. The purpose of this measurement is to purge the sampling equipment and to verify that there are no leaks in the sampling train and that oxygen and/or nitrogen concentrations in the LFG are less than 5 percent and/or 20 percent, respectively (per EPA guidelines).

A total of three sequential Tier 2 samples will be collected for laboratory analysis. A fourth sample will be collected as a backup sample and will be analyzed only if a primary sample is damaged through shipping or laboratory procedures.

TIER 2 LABORATORY ANALYSES

The Tier 2 sample canisters will be shipped via overnight courier to AtmAA Inc. laboratory for analyses per EPA Method 3C (for oxygen and/or nitrogen content) and per EPA Method 25C (for total NMOCs).

Under the Virginia Environmental Laboratory Accreditation Program (VELAP), environmental laboratories must be certified under the VELAP when providing air, waste, or water data to the

VDEQ. However, there are no commercial laboratories currently accredited to provide analyses of air samples under EPA Method 3C and EPA Method 25C per the Tier 2 testing program. Furthermore, there are no laboratories accredited to provide analyses of air samples under EPA Method 25, which is provided as an alternate Tier 2 test method per NSPS Subpart WWW.

NSPS Subpart WWW (40 CFR §60.754(a)(3)) does indicate that EPA Method 18 may be used as an alternate to EPA Method 25C (or Method 25). Per NSPS Subpart WWW, if Method 18 is used, at a minimum each of the compounds listed in AP-42, Section 2.4, Table 2.4-1 (minus mercury, hydrogen sulfide, and carbon monoxide) must be analyzed, and the results for the individual compounds summarized to estimate the total NMOC concentration.

There are two laboratories currently accredited for EPA Method 18[1]: Airnova, Inc., and Enthalpy Analytical, Inc. However, Airnova is not certified under EPA Method 18 to analyze any individual organic compounds as stipulated by NSPS Subpart WWW. And while Enthalpy Analytical is certified to analyze some individual organic compounds, it is only certified to analyze approximately 25 percent of those compounds identified in AP-42, Table 2-4. Finally, neither of these laboratories is certified to perform EPA Method 3C, necessary to verify oxygen (or nitrogen) levels are within the respective limits.

Therefore, it appears that no laboratories are currently VELAP-certified to fully perform any of the analyses required by the EPA's Tier 2 testing under NSPS Subpart WWW. SCS has contacted a number of laboratories that provide these specialized LFG analyses. Only AtmAA Inc. has indicated they have initiated steps toward the necessary accreditations. On August 13, 2012, Todd Alonzo, Environmental Manager II in the VDEQ's Office of Air Compliance, indicated that he called the Division of Consolidated Laboratory Services, the agency that certifies laboratories, and there are currently no labs that have applied for certification of Method 25C. The VELAP certification program is complex and time consuming and it is likely that no laboratories will obtain the necessary certifications by the time of the required Tier 2 re-testing at Rockingham County Landfill.

It should be noted that SCS has performed over 300 Tier 2 tests at landfills over the past 15 years. We have not utilized EPA Method 18 for any of these Tier 2 sampling events, nor are we aware of Method 18 having been utilized for Tier 2 sampling at any site in Virginia or any other state. Because Method 18 provides concentrations for individual constituents and not total organics, SCS has concerns regarding the applicability of this test method for determining total NMOC concentration. In our experience, EPA Method 25C is clearly the most appropriate test method for LFG Tier 2 sampling analysis.

Given these considerations and given its interest to demonstrate and maintain compliance with the applicable NMOC testing requirements of the NSPS Subpart WWW as well as its Title V operating permit, the landfill proposes to conduct the sampling in accordance with the 5-year schedule and analyze the samples using a qualified laboratory highly experienced in these types of analyses and per the most appropriate EPA test method (Method 25C).

1 Most recently updated on Sept. 25, 2012; http://www.dgs.state.va.us/LinkClick.aspx?fileticket=AgaBuTiY%2bpA%3d&tabid=1059

DOCUMENT CERTIFICATION

Facility Name: Rockingham County Landfill

Registration No. 81569

Facility Location: 2400 Grassy Creek Road, Harrisonburg, VA

Type of Submittal Attached: Proposed Tier 2 NMOC Sampling Protocol

Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Responsible Official (Print): Mr. Barry Hertzler

Title: Director of Public Works

Signature: _____ **Date:** 11/6/12

ATTACHMENT C

ATMAA, INC. LABORATORY RESULTS SUMMARY

AtmAA Inc.
23917 Craftsman Rd., Calabasas, CA 91302 • (818) 223-3277 • FAX (818) 223-8250
environmental consultants
laboratory services

January 22, 2013

LTR/019n/13

Derek Dyer
SCS Engineers
11260 Roger Bacon Dr.
Reston, VA 20165

re: Rockingham Co. Landfill

Dear Derek:

Please find enclosed the laboratory analysis report and the original chain of custody form for four SUMMA canister samples received January 3, 2013.

Three canister samples were analyzed for permanent gases by EPA 3C and TGNMO by EPA M25C. Canister number 111 was not analyzed. Also enclosed is a data package for the TGNMO analysis by M25C and calculation.

Sincerely,

AtmAA, Inc.

Michael L. Porter
Laboratory Director

Encl.
MLP/krm

AtmAA Inc.
23917 Craftsman Rd., Calabasas, CA 91302 • (818) 223-3277 • FAX (818) 223-8250
environmental consultants
laboratory services

LABORATORY ANALYSIS REPORT

Total Gaseous Non-Methane Organics (TGNMO), Nitrogen, and Oxygen
Analysis in SUMMA Canister Samples

Report Date: January 17, 2013
Client: SCS Engineers
Site: Rockingham Co.
Project No.: 02206505.00
Date Received: January 3, 2013
Date Analyzed: January 4, - 14, 2013
Instrumental Operator: Michael S. Porter

ANALYSIS DESCRIPTION

Total gaseous non-methane organics in SUMMA canisters was measured by flame ionization detection/ total combustion analysis (FID/TCA), EPA Method 25C. Nitrogen and oxygen were measured by thermal conductivity detection/ gas chromatography (TCD/GC), EPA Method 3C.

AtmAA Lab No.	Sample ID	Oxygen (%,v)	Nitrogen (%,v)	TGNMO (ppmvC)	TGNMO (ppmvC6)
10033-1	LFG-1	1.72	20.9	1053	175
10033-2	LFG-2	1.70	21.1	1229	205
10033-3	LFG-3	1.76	20.8	1349	225

TGNMO is total gaseous non-methane organics reported as ppmvC and ppmvC6.
The reported oxygen concentration includes any argon present in the sample, calibration is based on a standard atmosphere containing 20.95% oxygen and 0.93% argon.

Note: Site barometric pressures and site temperatures which were recorded on the field observation sheet, were used in the concentration calculations.

Michael L. Porter
Laboratory Director

AtmAA Inc.
23917 Craftsman Rd., Calabasas, CA 91302 • (818) 223-3277 • FAX (818) 223-8250
environmental consultants
laboratory services

LABORATORY ANALYSIS REPORT

Permanent Gases Analysis in SUMMA Canister Samples

Report Date: January 21, 2013
Client: SCS Engineers
Site: Rockingham Co. Landfill
Client Project No.: 02206505.00

Date Received: January 3, 2013
Date Analyzed: January 14, 2013

ANALYSIS DESCRIPTION

Permanent gases were measured by thermal conductivity detection/gas chromatography (TCD/GC), EPA 3C.

AtmAA Lab No.:	10033-1	10033-2	10033-3			
Sample ID:	LFG-1	LFG-2	LFG-3			
Canister:	347	297	369			
	(Concentration in %v)					
Methane	46.9	47.0	46.5			
Carbon Dioxide	31.8	31.8	31.9			
Nitrogen	20.0	20.1	19.9			
Oxygen	1.65	1.62	1.70			

Actual analysis results are reported on a "wet" basis.

Michael L. Porter
Laboratory Director

QUALITY ASSURANCE SUMMARY

(Repeat Analyses)

Site: Rockingham Co. Landfill
Date Received: January 3, 2013
Date Analyzed: January 14, 2013

Components	Sample ID	Repeat Analysis Run #1	Repeat Analysis Run #2	Mean Conc.	% Diff. From Mean
		(Concentration in %v)			
Methane	LFG-1	47.0	46.8	46.9	0.21
	LFG-2	47.1	46.8	47.0	0.32
	LFG-3	46.7	46.3	46.5	0.43
Carbon Dioxide	LFG-1	32.0	31.6	31.8	0.63
	LFG-2	31.8	31.8	31.8	0.0
	LFG-3	31.8	31.9	31.9	0.16
Nitrogen	LFG-1	19.7	20.2	20.0	1.3
	LFG-2	20.1	20.1	20.1	0.0
	LFG-3	20.0	19.7	19.9	0.76
Oxygen	LFG-1	1.73	1.57	1.65	4.8
	LFG-2	1.61	1.63	1.62	0.62
	LFG-3	1.61	1.78	1.70	5.0

Three SUMMA canister samples, laboratory numbers 10033-(1-3), were analyzed for permanent gases. Agreement between repeat analyses is a measure of precision and is shown in the column "% Difference from Mean". The average % Difference from Mean for 12 repeat measurements from three SUMMA canister samples is 0.77%.

ATTACHMENT D

DOCUMENT CERTIFICATION

DOCUMENT CERTIFICATION

Facility Name: Rockingham County Landfill

Registration No. 81569

Facility Location: 20 East Gay Street, Harrisonburg, VA 22801

Type of Submittal Attached: NSPS Tier 2 NMOC Emission Summary Report – 2013

Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Responsible Official (Print): Mr. Barry Hertzler

Title: Director of Public Works

Signature: Barry Hertzler **Date:** 2/8/2013